

Therefore I claim:

1. A flow meter comprising:

a housing comprising an inner surface and an inlet port and an exit port;

5 an inner component have an outer surface that defines at least part of a sphere;

a first rotor mounted for rotation in the housing about a first axis and having a forward region and a rearward region and a first outer surface defining at least part of a sphere and adapted to intimately engages the inner surface of the housing;

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a second rotor having a forward portion and a rearward portion, mounted for rotation in the housing about a second axis offset from being collinear with the first axis by an angle α and intersecting at the common centers of the rotors, the second rotor including a second inner surface defining at least part of a sphere having a common center with the center of the first rotor and is adapted to engage the said inner component, a second outer surface defining at least part of a sphere and having a common center with the second inner surface and adapted to engage the inner surface of the housing;

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the said first rotor further having a first contour surface that is defined by a locus formed by points on the second rotor as the second rotor rotates about the second axis, and the first rotor further has a first engagement tip which is positioned in the forward region of the first rotor;

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the second rotor further having a second engagement surface that is defined by a locus formed by points on the first rotor as the first rotor rotates about the first axis, the second engagement surface having a base region;

5 the points of each rotor that define the locus lie along an outer edge of a central axis is essentially a radius extending outward from the common centers of the rotor at an angle $\alpha/2$ from a normal to the axis of the other rotor;

10 a counter engaged to at least one of the said rotors where the counter is adapted to count the number of rotations of the rotors;

15 whereas the contour surfaces of the first and second rotors define operating chambers that change in volume with respects to rotation of the first and second rotors where a certain amount of fluid passes from the inlet port to the outlet port per revolution of the first and second rotors and the counter indicates the number of rotations.

20 2. The flow meter as recited in claim 1 further comprising a display interface that indicates the number of rotations of the first and second rotor.

3. The flow meter as recited in claim 1 where a first volumetric value is a product of a volume per rotation coefficient that is the volumetric throughput per revolution of the first and second rotors and the number of rotations.

25 4. The flow meter as recited in claim 3 further comprising an output component that posts the first volumetric value of the flow meter.

5. The flow meter as recited in claim 4 where the volumetric throughput through the input port to the output port to the flow

meter is measured for given unit of time and the output portion produces the volumetric flow rate.

6. The flow meter as recited in claim 3 further comprising;

5 a pressure differential system that measures the differential pressure from the input port to the output port;

a velocimeter that is in communication with the counter and indicates the number of rotations per unit of time and outputs a rotational velocity of the rotors;

10 whereas the pressure differential and the rotational velocity are used to determine the volumetric quantity of blow-by.

7. The flow meter as recited in claim 6 where the volumetric quantity of blow-by is added to the first volumetric quantity to represent the total volumetric throughput from the inlet port to the output port.

15 8. The flow meter as recited in claim 6 above where the volumetric quantity of blow-by is divided by a unit of time to produce a blow-by volumetric throughput rate value.

9. A method of measuring the flow of the fluid comprising the steps of:

channeling the fluid through an input port of the flow meter device that comprises:

20 a housing comprising an inner surface and the said input port and an exit port;

an inner component have an outer surface that defines at least part of a sphere;

25 a first rotor mounted for rotation in the housing about a first axis and having a forward region and a rearward region and a first outer surface defining

at least part of a sphere and adapted to intimately engage the inner surface of the housing;

5 a second rotor having a forward portion and a rearward portion, mounted for rotation in the housing about a second axis offset from being collinear with the first axis by an angle α and intersecting at the common centers of the rotors, the second rotor including a second inner surface defining at least part of a sphere having a

10 common center with the center of the first rotor and is adapted to engage the said inner component, a second outer surface defining at least part of a sphere and having a common center with the second inner surface and adapted

15 to engage the inner surface of the housing;

the said first rotor further having a first contour surface that is defined by a locus formed by points on the second rotor as the second rotor rotates about the second axis, and the first rotor further

20 has a first engagement tip which is positioned in the forward region of the first rotor;

the second rotor further having a second engagement surface that is defined by a locus formed by points on the first rotor as the first rotor rotates about the

25 first axis, the second engagement surface having a base region;

the points of each rotor that define the locus lie along an outer edge of a central axis is essentially a radius extending outward from the common

centers of the rotor at an angle $\alpha/2$ from a normal
to the axis of the other rotor;
a counter engaged to at least one of the said rotors
where the counter is adapted to count the number
5 of rotations of the rotors;
whereas the volumetric throughput of the fluid is a product of
the number of rotations and the volume for rotation
coefficient of the flow meter device.